ATOMIC ENERGY newsletter®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
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Dear Sir:

Appropriation of $2,269,114,000 has been set up as budget for USAEC for fiscal year 1960 in bill (H.R.8283) recently passed by House. This is $58,186,000 less than USAEC had requested, and $18,221,000 below fiscal year 1959 appropriation. (Through reappropriation of $113,200,000 and because of an unobligated item of $152,216,000 for plant acquisition and construction on the USAEC's books, the amount actually available for fiscal year 1960 to the Commission is $234,457,000 over the 1959 appropriation.) (Other FINANCIAL NEWS, p. 5 this LETTER.)

Astronuclear laboratory to develop nuclear energy for outer space applications will be part of a new atomic power division of Westinghouse Electric Corp. The company's existing and future commercial atomic power work will also be consolidated in this division; Bettis atomic power laboratory, operated by Westinghouse for the USAEC, will be a separate operation. Heading the new division, including the astronuclear laboratory, will be vice president John W. Simpson, formerly in charge of Bettis. Sidney Krasik, former Bettis physics manager, will be technical director of the astronuclear laboratory. (Other BUSINESS NEWS, p. 3 this LETTER.)

New bids for construction work at Tonopah Ballistics Range, in Nevada, have been asked by the USAEC. Bids previously requested had been received by the Commission in June. Changes in technical requirements caused new bid invitations. Bid forms may be obtained from the USAEC's Albuquerque operations office, P. O. Box 5400, Albuquerque, N.M., for the job, in the $750,000 to $900,000 range, and which consists of construction of concrete target impact pad; camera stations and pits; etc...Bids have been asked with Aug. 18 deadline for construction of plutonium recovery facility at Hanford Works. Details and bid forms are available at the USAEC's Hanford operations office, Richland, Wash. (Other BIDS ASKED, CONTRACTS AWARDED, p. 2 this LETTER.)

Nuclear Data, Inc., is new firm established in Wheaton, Ill., by Robert W. Schumann, who is serving as president, and Norman S. Jones, who will be vice president. The company will develop and manufacture electronic instrumentation of advanced design with initial emphasis on radiation analyzing equipment. (Other INSTRUMENTATION NEWS, p. 4 this LETTER.)

First shipment of 60 units has been made by AMF Atomics (Canada) Ltd., against an order for 300 uranium oxide fuel elements which the company holds from Atomic Energy of Canada, Ltd. The uranium oxide had been furnished by Eldorado Mining & Refining, Ltd.; formed into ceramic pellets in the U. S.; and then clad in aluminum, leak tested, and assembled into clusters of seven rods each at AMF's Port Hope, Ontario, plant. AECL will use the fuel elements at its Chalk River, Ontario, research reactor ZEEP which has been operating with other types of fuel elements and for the new ZED-2 reactor, now under construction. (Other PRODUCT NEWS, p. 4 this letter.)

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ATOMIC ENERGY CONTRACT NEWS...

CONTRACTS AWARDED:- Contract in the value of $2 million has been awarded Pratt & Whitney division of United Aircraft Corp., to develop components for a nuclear power plant for aircraft. Award, made by the Navy's Bureau of Aeronautics, was the first one of its kind made by the Navy. Under earlier Navy contracts, P&W had established the design feasibility of these power plant components. Work will be done at the Middletown, Conn., laboratory of P&W.

Contract to study airframe designs for a nuclear powered anti-submarine warfare seaplane has been awarded by the Navy Department to The Martin Co., Baltimore, Md. Design studies, under this $127,000 research and development contract, will be based on aircraft using turboprop engines. Of one year duration, the contract brings to a total of $1.5 million the dollar value of contracts which Martin has received for nuclear aircraft studies since 1953. (The Navy's 1960 fiscal year seaplane program involves total expenditures of $2 million; from 1955-59, the Navy spent $12.4 million. The Navy is interested in an indirect cycle engine system, as more applicable to seaplane missions than the direct cycle type, according to Vice Admiral J. T. Hayward, assistant chief of naval operations for research and development. In 1961, the Navy expects to spend $4 million to $5 million, primarily on the components of the system, and in operating a turboprop engine with a nuclear reactor, Adm. Hayward stated.)

Under $20,461 contract awarded H. R. Boatman Co., Knoxville, Tenn., by the USAEC's Oak Ridge, Tenn., office, a new treatment room will be added to the Commission's medical division hospital at Oak Ridge. The addition, to be known as the total body irradiation facility, will be near the cesium and cobalt teletherapy treatment rooms. Approximately 4000 curies of cesium-137, divided into 8 sources, will be used for irradiation work in this new facility.

Contract by the Army's medical research and development command has been awarded Michigan Chemical Corp., St. Louis, Mich., to synthesize compounds which will be tested under the Army's intiradiation program. The compounds will be used, either orally or by injection, to combat ionizing radiation.

Under first research contract set up between the USAEC and the International Atomic Energy Agency, the Commission will make $20,000 available for research and development into methods of producing calcium-47. Considered to have great potential significance in biology and medicine, calcium-47 is now in short supply as it is difficult to produce in usable quantities. Under the contract, IAEA will use the $20,000 in a sub-contracted research effort to develop a cheaper method of enriching calcium-46 (which can then be irradiated in a high flux reactor to produce the desired calcium-47). USAEC's New York operations office will administer the contract.

As preliminary to planned underground nuclear detonations, the USAEC has contracted with the Carey Salt Co., for use of a portion of the company's mine near Winnfield, La., for detonation of several non-nuclear explosive charges. Shock wave patterns, and other effects of the non-nuclear detonations will be used in engineering studies connected with the proposed nuclear explosions.

PROPOSALS ACCEPTED:- Test irradiation services will be provided the USAEC by Babcock & Wilcox Co., in a 60,000 thermal kw test reactor the company will build at Lynchburg, Va., under proposal made by the company and accepted by the Commission. Contract which will be negotiated with the company under this proposal will cover a five year period, starting about two years from now, when the reactor is built. About $15 million is to be spent by the USAEC under this contract. It is believed the reactor will meet the Commission's test needs for neutrons in the low-and mid-flux ranges. During the two year construction period of the B&W reactor, space in other privately-owned test reactors will be hired by the Commission. (B&W's proposal was most acceptable to the USAEC of 11 submitted in response to its invitation issued October, 1958.)

An unsolicited proposal made to the USAEC by Aerojet General Nucleonics, San Ramon, Calif., for study of a new power reactor concept has been accepted by the Commission, and contract for the investigation is being negotiated. Aerojet's proposed reactor would be cooled by boiling sulfur at about 1200 deg. F. The company notes that high thermal efficiency is theoretically attainable if engineering problems can be solved. (The company's proposal was accepted from among 11 received between Sept. 1, 1958 and Feb. 28, 1959 under the USAEC's program for evaluating semiannually unsolicited proposals from industrial firms for studies of new reactor concepts. Such proposals may be submitted at any time.)

ATOMIC ENERGY BUSINESS NEWS...

CANCER THERAPY MACHINES SHIPPED:- Four more cancer therapy machines with their cobalt-60 radiation sources have been shipped by the Commercial Products division of Atomic Energy of Canada, Ltd., to the Republic of China. The shipment was valued at $180,000. Two machines had been bought from Canada by China last January; total value of shipments to date is $300,000. Since production started in AECL's Ottawa, Ontario shops, the Commercial Products division has shipped 160 cancer therapy machines to 27 countries; total value of these units and their radiation sources is about $7 million. Now being produced are six different models of the cobalt-60 therapy machines and a cesium-137 therapy machine.

SOVIET ICEBREAKER UNDERGOING FINAL FITTING:- As inspected in a Leningrad, Russia, shipyard last week by U. S. Vice Admiral H. Rickover, in Russia with Vice President Nixon, the Soviet icebreaker Lenin's nuclear propulsion machinery is "a first class job, but not an advance in the reactor art", Adm. Rickover commented. The Lenin was described by him as a 16,000 ton vessel with three pressurized water reactors using uranium oxide with about 5% enrichment. He said the propulsion machinery could develop a total of 18,000 shaft-horsepower, and enable the craft to go through ice 8-ft. thick at a speed of three to four knots. It is expected to have the ship operating by October of this year, he was told by engineers on the job.

FIRST WORK UNDERWAY ON NEW FUEL REPROCESSING FACILITIES:- Preliminary engineering work has started on new facilities at General Electric Co.'s chemical processing department at Hanford Works, Richland, Wash., for reprocessing spent fuel elements from nuclear power reactors operating (or soon to be operating) in the U. S. Detailed design will get underway in August, and it is believed the facilities will be ready to receive fuels by early 1961. Total cost is estimated at $6 million. The construction of the facilities, and the subsequent reprocessing, will be done under GE's existing contract from the USAEC for the entire Hanford operation. The facilities will have provision to receive from the various nuclear power stations from 50 to 150 tons per year of a highly diversified fuel material with up to 5% uranium-235 enrichment, normally called "low enrichment" fuel. Fuel elements that will be received will probably be in many sizes and shapes, with a uranium alloy or oxide fuel core, and clad in aluminum, zirconium and stainless steel. Separation of uranium and plutonium will be done in Hanford's Redox plant by solvent extraction, and uranium solutions will be processed to the oxide powder in another existing building.

NEW BOOKS & OTHER PUBLICATIONS...

Nuclear Electronics. First volume containing proceedings of first five of nine sessions of an international symposium on nuclear electronics held in Paris, September, 1958. Includes some 50 papers presented at the symposium and the records of oral discussion. 452 pages. -- International Atomic Energy Agency, Karntnerring 11, Vienna 1, Austria. ($4.00)

Boiling Water Reactor Marine Propulsion Plant for Commercial Tanker; Preliminary Design, Dec. 1, 1958. Work done by Atomic Power Equipment Department, General Electric Co., San Jose, Calif. 239 pages. No. GEAP-3088 ($3.00)...Reference Design for OMR-powered 38,000-dwt tanker; including engineering drawings. Work done by Atomics International div. of North American Aviation, Inc., Canoga Park, Calif. No. NAA-Sr-1851 & supp. 141 pages. ($3.00)...Pathfinder Atomic Power Plant, technical progress report for Apr. 1 - June 30, 1958. Work done by Allis-Chalmers Manufacturing Co., Milwaukee, Wisc. No. AECU-3782. 67 pages. ($2.00). -- Office of Technical Services, Wash. 25, D. C.

NOTES:- Annual report for 1958-59 of Atomic Energy of Canada, Ltd., describing activities in that country in research and development, may be obtained from AECL at P. O. Box 711, Ottawa, Ontario, Canada.

MEETINGS, COURSES, CONFERENCES...

CONFERENCES:- General chairman of the 1960 Nuclear Congress to be held in New York Apr. 3-8, 1960, will be Clarke E. Williams, while E. B. Gunyou has accepted appointment as program chairman. Dr. Williams is chairman of the nuclear engineering department, Brookhaven National Laboratory, Upton, L.I., and Dr. Gunyou is director of engineering of the Princeton division of Curtiss-Wright Corp., Princeton, N.J. (American Society of Civil Engineers has the management responsibility for the 1960 Congress.) In addition to the series of conference sessions, all of which will be held in the N.Y. Coliseum, an industry-wide exhibit will be on display.

NEW PRODUCTS, PROCESSES, INSTRUMENTS...for nuclear lab & plant...

NEW PRODUCTS FROM MANUFACTURERS:- Miniature radiation detection instrument, designed for personnel protection, is trade-named FIDO (fallout intensity detector oscillator). The device, some 3"x2"x5/8" in size, emits an audible signal that increases in intensity as radiation increases above 0.2 roentgens per hour; or a meter may be supplied for visual indication of radiation dose rate. The solid state sensing element used responds to all forms of nuclear radiation at dose rates up to 5000 roentgens per hour. -- Controls for Radiation, Inc., Cambridge, Mass.

Low cost semiautomatic liquid scintillation counter, model LSC-10, consists of a compact top-opening deep freeze unit which contains the semiautomatic sample changing equipment, and a four foot instrument console containing the associated electronic circuitry. The system is said to offer excellent sensitivity permitting extremely low concentrations of carbon or tritium to be counted in minimum time... New ring type film badge service, now being offered by this firm, uses an elasticized cloth ring which will fit any size finger. The film packet is sealed in a thin transparent plastic material for protection from accidental immersion in liquids. -- Tracerlab, Inc., Waltham 53, Mass.

PRODUCT NEWS:- Enriched boron-10, in the form of elemental boron and the compound potassium fluoborate, is now being sold by the USAEC's Lockland, Ohio, aircraft reactors operations office. Sales previously had been handled through the USAEC's Chicago operations office. Storage, packaging and shipping of these materials are being done by Michigan Chemical Corp., St. Louis, Mich., under contract to the Lockland office. (Boron enriched to more than 92% B-10 may be obtained only from Oak Ridge National Laboratory. Oak Ridge also supplies special compounds of boron-10 at the 92% assay level, such as colloidal suspensions of elemental boron in oil; it also supplies boron-11, ranging up to 98.5% of B-11 content.)

Price reductions of 20-25% have been made on the unit prices of survey, dip type and industrial type Geiger tubes by Tracerlab, Inc., Waltham, Mass. The company's usual quantity discounts also apply to these reduced prices.

Uranium salts mixed with other molten salts may make a better fuel for high temperature nuclear reactors than uranium metal rods now in use, according to Haakon Flood, of Norway, an authority in the field of molten salt chemistry. Dr. Flood, now visiting professor of engineering at the University of Calif., Los Angeles, is also serving as advisor to U. S. nuclear installations on chemical problems of fueling reactors with uranium salts. He points out that molten uranium salts, being in liquid form do not change shape (as opposed to the metal rods), and can be continuously purified by a cycling process (while rods must be removed from the reactor). Use of molten salts raises new problems, he noted, such as finding the proper material for the salt containers.

Almost 94% of the strontium-90 in milk can be removed by ion exchange resins, according to a research group of the University of Tennessee, working with USAEC people. The research team used a calcium-based resin to exchange strontium-90 for calcium, and thus produced milk containing more calcium than untreated milk. A slight change in taste in the treated milk was reported, although it was said to be hardly noticeable.

MANUFACTURERS' NEWS:- Order for a six-million electron volt microwave linear accelerator for cancer therapy and research has been received by High Voltage Engineering Corp., Burlington, Mass., from Elizabeth Steel Magee Hospital, Pittsburgh, Pa. The supervoltage machine, which will be the first of its type to be installed in a hospital, can produce sharply defined, deep-penetrating x-rays at distances which protect against skin damage and at depth dosages which substantially reduce treatment time.

Sale has been made by Victoreen Instrument Co., Cleveland, of two continuous liquid monitoring units for the water supply of the city of Philadelphia. The municipality is paying $7,000 each for the radiation measuring devices, which Victoreen expects to deliver and install in about two months. The city of Cleveland is also considering the use of such equipment for its water supply, according to Duane M. Mayhew, Victoreen vice president.

New contracts with value of $600,000 have brought Tracerlab, Inc.'s order backlog to more than $3.5 million which is the highest level in the company's history, according to H. S. Myers, marketing vice president of the Waltham, Mass., nuclear products firm. Mr. Myers attributes the new business to the company's expanded new products development and sales efforts programs recently initiated.

ATOMIC ENERGY PATENT DIGEST...

PATENTS ISSUED July 21, 1959 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:-(1) Isotope concentration system. Jerome S. Spevack, inventor. No. 2,895,803 issued to inventor of record. (2) Charged particle beam diffuser. S. R. Farrell, inventor, No. 2,896,103 assigned to Applied Radiation Corp., Walnut Creek, Calif. (3) Radioactive electrode construction. K. Lehovec, inventor. No. 2,896,137 assigned to Sprague Electric Co., N. Adams, Mass.

PATENTS ISSUED July 21, 1959 to GOVERNMENTAL ORGANIZATIONS:- (1) Separation process for protactinium and compounds thereof. Q. Van Winkle, inventor. No. 2,895,791 assigned to USAEC. (2) Barium recovery process. R. E. Blanco, inventor. No. 2,895,798 assigned to USAEC. (3) Method for determining the stability of fluorocarbon oils. Z. D. Sheldon, H. M. Haendler, inventors. No. 2,895,806 assigned to USAEC. (4) Method of preparing coated refractory ware. M. L. Perlman, D. Lipkin, S. I. Weissman, inventors. No. 2,895,849 assigned to USAEC.

PATENTS ISSUED July 28, 1959 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:-(1) Irradiation method and apparatus. Davis R. Dewey, II, John G. Trump, inventors. No. 2,897,365 assigned to High Voltage Engineering Corp., Cambridge, Mass. (2) Aerial geophysical exploration with scintillation spectrometer. Hans T. F. Lundberg, Robert W. Pringle, Kenneth I. Roulston, George M. Brownell, inventors. No. 2,897,368 issued to inventors of record. (3) Spectroscopy. Maurice F. Hasler, inventor. No. 2,897,371 assigned to Applied Research Laboratories, Inc., Glendale, Calif. (4) Directionally sensitive shallow ionization chambers for neutron well logging. Robert E. Fearon, Jean M. Thayer, inventors. No. 2,897,372 assigned to Well Surveys, Inc.

PATENTS ISSUED July 28, 1959 to GOVERNMENTAL ORGANIZATIONS:- (1) Extraction of uranium. R. D. Kesler, D. D. Rabb, inventors. No. 2,897,045 assigned to USAEC. (2) Separation of thorium from uranium by extraction. E. G. Bohlmann, inventor. No. 2,897,046 assigned to USAEC. (3) Method of dissolving metallic uranium. W. W. Schulz, inventor No. 2,897,047 assigned to USAEC. (4) Uranium recovery process. J. W. Stevenson, R. G. Werkema, inventors. No. 2,897,048 assigned to USAEC. (5) Treatment of fission product waste. J. B. Huff, inventor. No. 2,897,049 assigned to USAEC. (6) Plutonium-uranium-titanium alloys. A. S. Coffinberry, inventor. No. 2,897,077 assigned to USAEC. (7) Pretreating thorium for electroplating. J. G. Beach, G. R. Schaer, inventors. No. 2,897,124 assigned to USAEC.

PATENT NEWS:- New group of some 83 patented inventions, issued from Jan. to April 1959, developed in the course of research sponsored by the USAEC and assigned to the Commission (as reported regularly in this LETTER), has now been made generally available on royalty-free (but non-exclusive) usage basis. This makes 1,944 patented inventions in the nuclear field so available; full details may be obtained from the USAEC's general counsel, Washington 25, D.C.

ATOMIC ENERGY FINANCIAL NEWS...

MERGER PLANNED:: Merger of Victoreen Instrument Co., with Tenney Engineering, Inc., has been voted by the directors of the two firms and the proposal will be put to stockholders this September. The merger would be based on an exchange of eight-tenths of one share of Victoreen stock for each Tenney share. New name of the company would be Victoreen-Tenney Corp. Victoreen, manufacturer of radiation monitoring and control equipment, electronic devices and neon display signs, with two plants in Cleveland and subsidiaries in Chicago; Kokomo, Ind.; and Alhambra, Calif., had sales of $5.5 million in 1958. Tenney, based in Union City, N.J., with a heating and air conditioning components manufacturing plant in Baltimore, had sales last year of about $4.5 million.

SALES AND EARNINGS INCREASE REGISTERED:- Sales of High Voltage Engineering Corp., Burlington, Mass., accelerator manufacturer, for the six months ended June 30, 1959 were $3,521,218 an increase of 20% over sales of $2,934,212 for the like period last year. Total net earnings were $304,689 or 78¢ per share, with comparable earnings for the period last year $235,491, or 62¢ per share. Order backlog June 30, 1959 was $6,768,257.

Sincerely,

The Staff,
ATOMIC ENERGY NEWSLETTER

August 4, 1959